ERDC Modeling and Simulation Initiative

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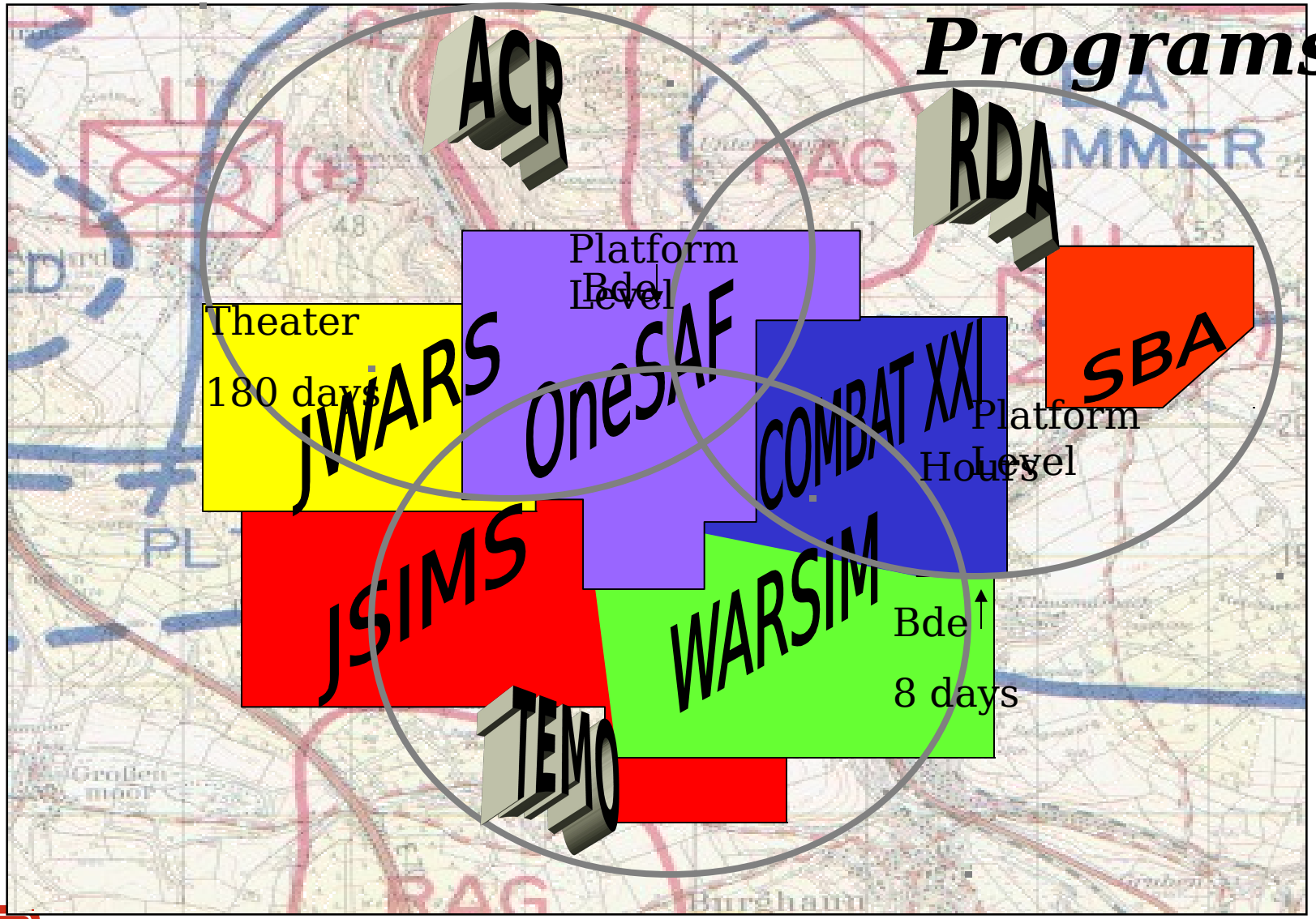
Overview

- Situation
- Initiative Purpose, Scope, and Activities
- Aquistion, Requirements, and Training (SMART)
- ERDC M&S Across the Battlespace
- M&S Issues for JLOTS
- Summary

Situation

- New CSA Vision
- DoDD 5000.1 “Defense Acquisition”
  - “M&S **shall** be used to reduce the time, resources, and risks of the acquisition process……proposed systems (virtual prototypes) **shall** be embedded in realistic, synthetic environments to support the various phases of the acquisition process…..”
- Next generation of M&S currently under development
  - combat simulations
  - SBA initiative

Major Developing M&S Programs



ERDC M&S Initiative Purpose & Scope

- Issue:
  - M&S used for decisions regarding future force design, doctrine, training, and acquisition
  - requires *common environment* and *enhanced realism* in CS/CSS portrayal
- ERDC M&S Working Group formed 18 September 1998 to develop consolidated initiative and strategy
  - involvement across all 8 labs
  - focus on physics-based modeling and fidelity tradeoffs for representation of SNE and operations across the battlespace
  - participate in standards development

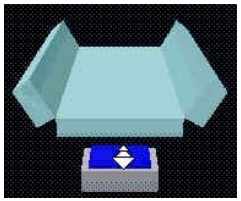
ERDC M&S Initiative Activities

- Membership: OneSAF IPTs, RDA Technical Working Group, AMSO Standards Categories
- Reviewer for: OneSAF, WARSIM, CombatXXI, JWARS design and development
- Conduct technical exchanges with major M&S programs, Maneuver Support Center, AMSO
- OneSAF Testbed Site
- ERDC M&S research areas:
  - consistent battlespace environment representation
  - system interaction with SNE
  - multi-resolution modeling
  - rapid spatial and structural modeling

ERDC M&S Across the Battlespace

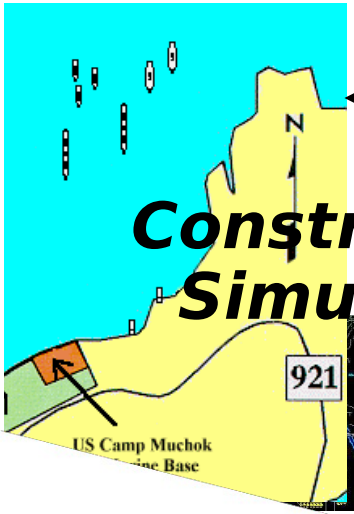
Building SMART Environments into M&S Across the Battlespace
Full Dimensional Protection
Synthetic Natural Environments
SMART
Dominant Maneuver
Focused Logistics
Precision Engagement

SMART/SBA Issues



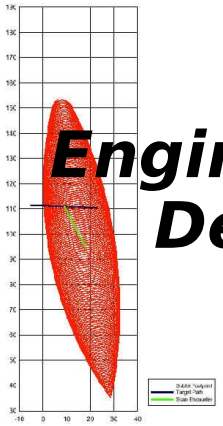
Concept

Virtual Prototype

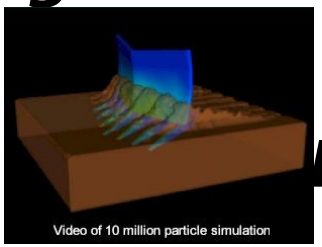


FIDELITY

Constructive Simulation



Engineering Design



Virtual Proving Ground

Concept Becomes Reality

Virtual Simulation

SCOPE

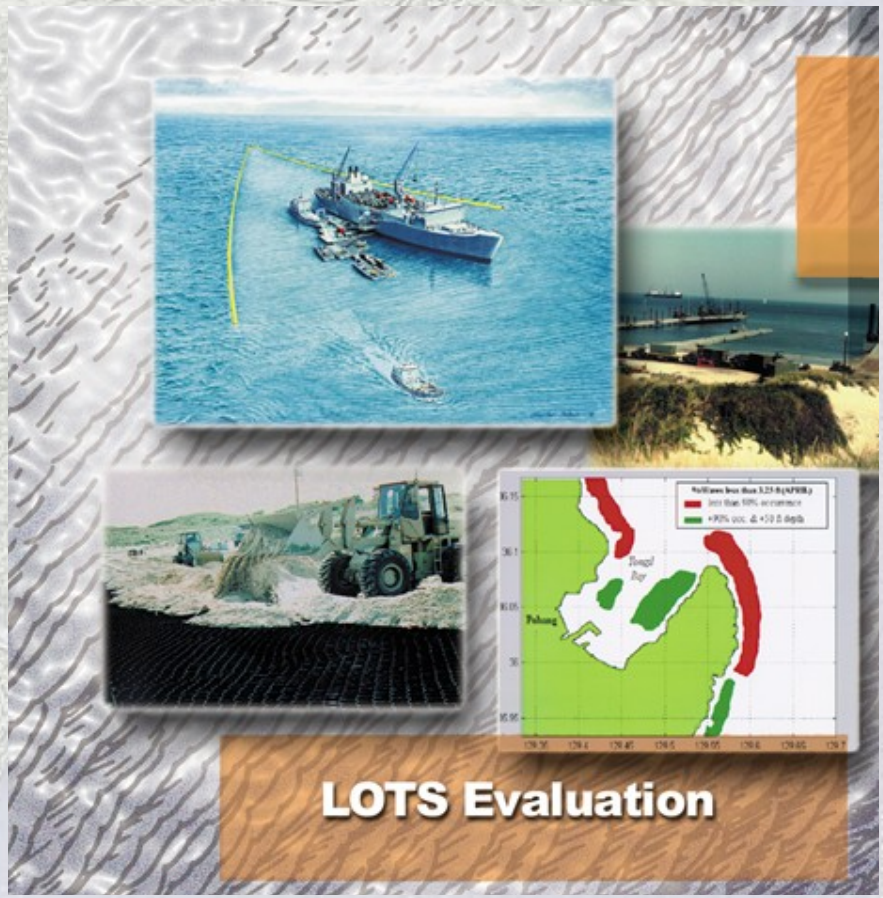
M&S Issues for JLOTS

- Achieving the Vision for a more (highly) deployable force will be carried out in part via M&S
  - acquistion of materiel solutions
  - doctrinal development
  - training
- Modeling and simulation of JLOTS and the environment is integral with consideration for
  - weather effects
  - transportation infrastructure
- Critical that the environment, systems, and operations be represented at the appropriate level of fidelity
  - component/sub-component level
  - through large-scale operations

M&S Issues for JLOTS

ERDC Capabilities

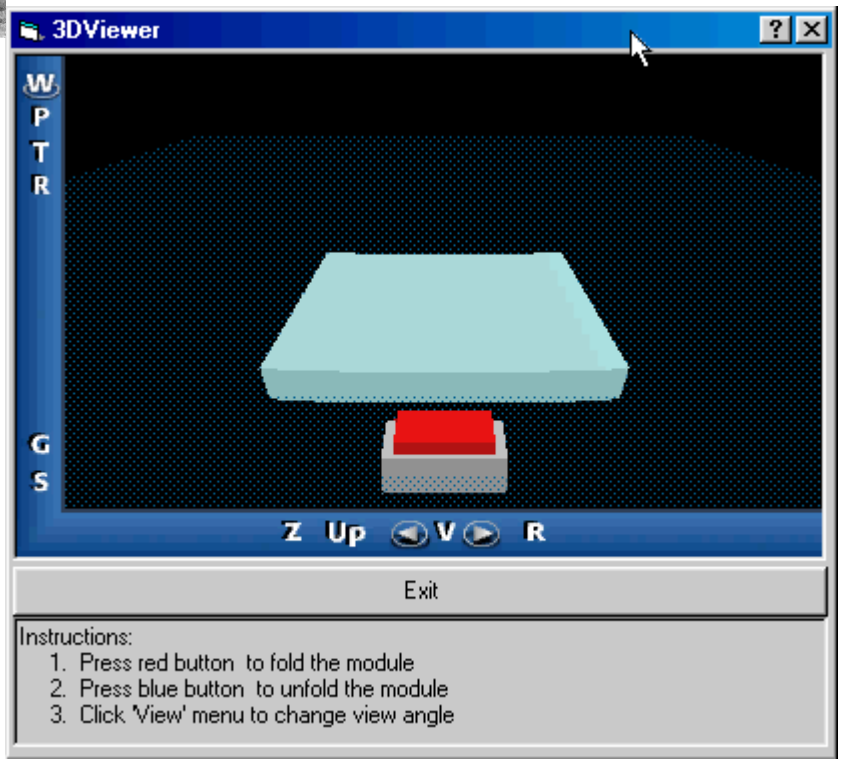
- SNE representation
  - sea state condition
  - littoral zone
  - shore transition
- Environment alterations
  - RIBS
  - beach stabilization
  - bridging
- CITM
  - ship to shore
  - over the shore



Related M&S Projects

RIBBON BRIDGE COMPOSABILITY

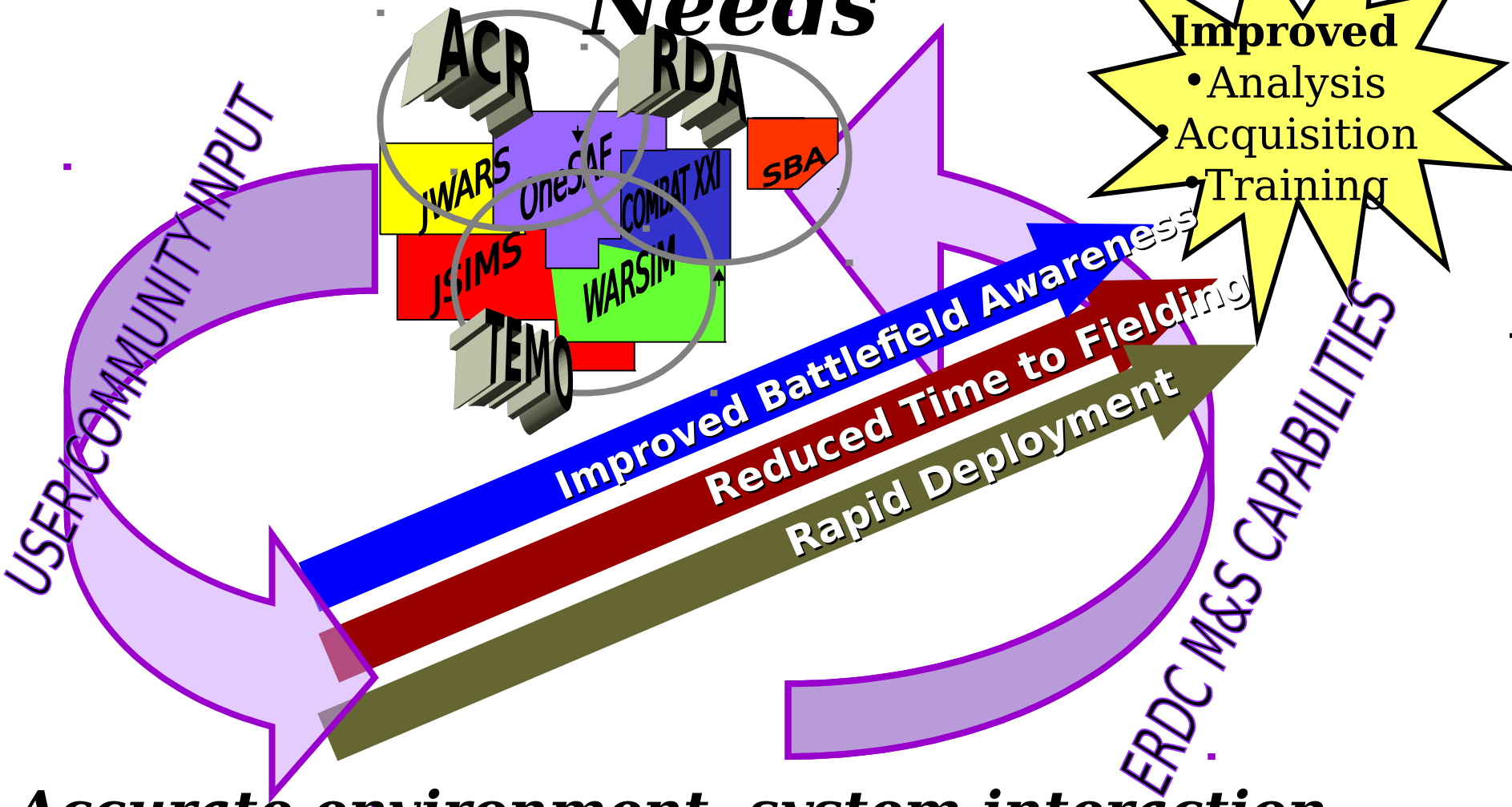
RIBBON BRIDGE DESIGN AND ANALYSIS



ERDC M&S Intitiative: Benefits/Impacts

- Ensures accurate and consistent Military Engineering representation in M&S
- Eliminates duplication and promotes reuse of algorithms, data, and methods
- Enables “Train As You Fight”
- Enhances Simulation Based Acquisition
- Contributes to attaining Army Vision for M&S After Next

ERDC M&S: Meeting DoD Needs



Accurate environment, system interaction representation in M&S